AMSAT News Service Weekly Bulletins
Issue: ANS-314
Date: 2019-11-10
Sources: amsat-ans-2019-ans-314-weekly-hyperkitty-21d4782428.txt

---

AMSAT NEWS SERVICE
ANS-314

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

You can sign up for free e-mail delivery of the AMSAT News Service Bulletins via the ANS List; to join this list see:
http://www.amsat.org/mailman/listinfo/ans

In this edition:

* HuskySat Paving the Way for Cooperation
* WRC-19 Debates Satellite Allocations
* Electron Booster on the Pad for Rocket Lab’s 10th Mission
* 2020 Cubesat Developers Workshop Call for Papers
* Second Batch of 50th Anniversary "Friends of 50" Certificates Sent
* AMSAT Seeks Digital Communications Team Members
* NO-83 (BRICSAT-P) Nears Re-Entry
* Upcoming ARISS Contact Schedule
* Upcoming Satellite Operations
* Satellite Shorts From All Over

SB SAT @ AMSAT $ANS-314.01
ANS-314 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 314.01
>From AMSAT HQ KENSINGTON, MD.
DATE 2019-Nov-11
To All RADIO AMATEURS
BID: $ANS-314.01

HuskySat Paving the Way for Cooperation

As previously reported by ANS, HuskySat-1 achieved orbit last week aboard the Cygnus cargo vessel, which docked to the International Space Station on Nov. 4. The satellite is scheduled for a boost to higher orbit and deployment in January. Following completion of its primary mission, it will be turned over to AMSAT for operation of its linear transponder sometime in the second quarter of 2020.

Jerry Buxton, NØJY, AMSAT VP - Engineering, explains that this partnership presented some regulatory challenges, but has paved the way for similar partnerships in the future:

"The Part 97 license that AMSAT will operate under does not include or allow the use of any of the experiments on board. As those experiments

were not able to conform to the Part 97 so called 'educational exemption', including the K-band radio, that is ultimately why two licenses were required. Part 5 Experimental is operated by UW for everything including the telemetry downlink of the AMSAT transponder module, and the transponder must remain off during that operation. Part 97 operation by AMSAT will solely be the AMSAT transponder module.

"This was the first partnership with an educational institution where an AMSAT radio was flown on a non-AMSAT (UW in this case) CubeSat. In the process of working with the FCC and NASA to obtain a single Part 97 license that was not complicated or restricted by "pecuniary interest", the experience developed an understanding with FCC as to how a mission such as HuskySat-1 could be fully licensed under Part 97. There were delays and difficulties in executing all of the requirements to qualify Part 97 and that ultimately carried on up to the mission deadline requirement for having a license in hand in order for HuskySat-1 to be integrated on the LV. The only way forward at that time, in order for UW to make the launch, was to do the separate licensing.

"It was lots of work and some good frustration along the way. I thank and commend our partners at University of Washington as well as the FCC for their work to make it happen, and our friends at NASA for giving us the opportunity to push for a path to amateur radio licensing for more of the CubeSat launches they sponsor. I believe that it has resulted in a known path toward fully Part 97 licensed educational(e.g. university) CubeSats. That should in turn offer more opportunities for AMSAT radios to fly as the communications package for a mission as well as an operating amateur radio satellite, in the same way as the CubeSats we produce."

(ANS thanks Jerry Buxton, NØJY, AMSAT VP - Engineering for the above information)

+=+=+=

One of the most difficult issues facing WRC-19 is to develop an agenda for WRC-23. Dozens of proposals for agenda items have been suggested, and they cannot all be accommodated. One proposal being introduced for the next World Radio Conference in 2023 is protecting the Radio Navigation Satellite Service (Galileo, etc.) from secondary amateur usage in the 23cm band (1.2 GHz -- the amateur satellite band is between 1260 MHz and 1270 MHz for up-links only).

Future mobile/IMT (cell phone) allocations were also being discussed in the 3-18 GHz range (including our 10 GHz satellite band). Another item may even affect 241 – 700 GHz. However, it will be a while before the WRC-23 agenda gets agreed at this conference, and these items may or may not be up for debate at the next conference.

Daily bulletins on the progress of WRC-19 are being posted at:
https://rsgb.org/main/blog/category/news/special-focus/wrc-19/

During this period of World Radio Conference, one place to follow the events and issues is on The ARRL discussion group for the International Amateur Radio Union. The group provides a forum for anyone interested in the work of the IARU. It is open to participants anywhere, whether or not they are members of an IARU member-society. Additional information and a link to join the group can be found at
https://groups.arrl.org/g/ARRL-IARU

[ANS thanks Trevor Essex, M5AKA, AMSAT-UK, and ARRL for the above information]

Electron Booster on the Pad for Rocket Lab’s 10th Mission

Rocket Lab has announced that its next mission will launch multiple microsatellites in a rideshare mission representing five different countries. The launch window for Rocket Lab’s tenth flight, will open November 25, New Zealand time, and take place from Rocket Lab Launch Complex 1 on New Zealand’s Mahia Peninsula.

Onboard this rideshare mission are six spacecraft comprised of 5cm PocketQube microsatellites from satellite manufacturer and mission management provider Alba Orbital. Two of these satellites include downlinks in the UHF amateur radio band.

TRSI is a PocketQube for technology demostration. Its main objective is to show which functionality can be achieved with dimensions of 5cm x 5cm x 5cm. It carries two experiments that are connected to the amateur-satellite service.

+ First is a waterfall experiment which will show an image in the waterfall diagram by hopping the frequency within its transmission band (image-type beacon).

+ The second experiment is to analyze RF reception capabilities from LEO with a novel detector receiver and a small patch antenna. It was designed to test if small satellite receivers which don´t need deployable antennas are feasible. The received signal´s envelope will be sampled and forwarded using UHF in MFSK for signal analysis. During the experiment phase the satellite will also perform as an amateur CW repeater, providing additional RX strength indication; eg. CW morse signals will be re-sent in MFSK, showing the RX amplitude in dBm. A downlink on 437.075 MHz has been coordinated.

IARU Frequency Coordination information has been posted at:

http://www.amsatuk.me.uk/iaru/finished_detail.php?serialnum=649

FossaSat-1 PocketQube by AMSAT-EA which has a 5x5x5cm structure and a total mass of 250 grams. Radio link testing features a new experimental RF chirp modulation called LoRa which greatly improves the link budget reducing the power consumed and reduces the cost of receivers.

The output power from the transmitter required for the correct reception during a pass is also very low at well under 100mW, being spread spectrum at such low power it poses no interference risk. It operates at a considerable level below the noise level of other systems and would cause no interference to weak narrowband signals.

Students & amateurs will be able to receive telemetry from the satellite with inexpensive hardware, expanding & promoting the amateur satellite community with youth. Uplink challenges will also be carried out with rewards for amateurs.

The mission is completely open source with all information regarding the design of the satellite & how to decode its information clearly laid out & hosted by AMSAT-EA. The site will provide decoding software for SDR use in order to allow anyone to decode LoRa using common existing hardware & host software for users to submit telemetry data, making all data public and rewarding users with certificates & awards. The UHF downlink plans on using FSK RTTY 45 BAUD ITA2, 100mW 183hz Shift and LoRa 125kHz, Chirp Spread Spectrum Modulation, 180 bps, 100mW. A downlink on 436.700 MHz has been coordinated.

IARU Frequency Coordination information has been posted at:
http://www.amsatuk.me.uk/iaru/finished_detail.php?serialnum=652

A commercial payload on board is ALE-2 from a Tokyo-based company creating microsatellites that simulate meteor particles. See http://star-ale.com/en/news/317/2019/01/04/ for more information.

Rocket Labs mission web page can be found at:
https://tinyurl.com/y672rjj5

[ANS thanks Rocket Labs, IARU, AMSAT-EA, TRSI, and Alba Orbital for the above information]

2020 Cubesat Developers Workshop Call for Papers

The Cubesat Developers Workshop for 2020 will be held May 4-6 at the Cal Poly Performing Arts Center in San Luis Obispo, Calif. The planning team has announced a call for abstracts. All abstract and poster applications will need to be submitted using the online submission form by Friday, January 10, 2020. For more information, visit http://www.cubesat.org/workshop-information

[ANS thanks The CubeSat Workshop Team for the above information]

+=+=+=

Under the Protecting Americans from Tax Hikes Act of 2015, individuals over 70-1/2 years of age may make direct transfers of up to $100,000 per year from a traditional IRA to an eligible charity without increasing their taxable income. Consult your tax advisor or accountant to make certain you are eligible.

AMSAT is a 501(c)(3) not-for-profit educational and scientific organization whose purpose is to design, construct, launch, and operate satellites in space and to provide the support needed to encourage amateurs to utilize these resources. AMSAT's federal tax ID is 52-0888529.

+=+

Second Batch of 50th Anniversary "Friends of 50" Certificates Sent

A second batch of 50th Anniversary AMSAT "Satellite Friends of 50 A-ward" certificates went out in the mail on Wednesday, November 6. Chances are you may have already qualified for this award! The require-ment is to make satellite contacts with 50 amateur radio operators on 50 differenton days during the anniversary year of 2019.(limit of 1 contact per day counted toward the award). For details, see: https://amsat.org/amsat-50th-anniversary-awards-program/

[ANS thanks Robert Bankston, KE4AL for the above information.]

+-+

Need new satellite antennas? Purchase Arrows, Alaskan Arrows, and M2 LEO-Packs from the AMSAT Store. When you purchase through AMSAT, a portion of the proceeds goes towards Keeping Amateur Radio in Space. https://amsat.org/product-category/hardware/

+-+

AMSAT Seeks Digital Communications Team Members

AMSAT is in the process of redesigning its website and is looking to immediately fill key volunteer member additions to its digital communications team. Available positions include a Webmaster, Content Managers, and an Online Store Co-Manager. Candidates must have experience with Word press and be a current AMSAT member.

Webmaster:
The Webmaster works as an integral member of the AMSAT Digital Communications Team in planning, organizing, implementing, and supporting strategic web technologies. Under minimal supervision, the Webmaster collaborates with the Digital Communications team and AMSAT Development to facilitate ongoing content creation, development of standards, and overall management of AMSAT's website and member portal. The primary objectives of the Webmaster are to ensure that AMSAT's digital presence accurately portrays the character, quality and heritage of AMSAT, provide an efficient user experience, and serve to increase recruitment and financial contributions.

Web Content Managers:
Web Content Managers ensure AMSAT's website and webpages follow best

content practices and meet the diverse needs of internal and external customers. As part of the AMSAT Digital Communications Team, Website Content Managers must understand the organizational needs, map them to the end-user needs and work with applicable AMSAT departments to create content strategy and plan for individual webpages.

Online Store Co-Manager:
The Online Store Co-Manager updates and refreshes the AMSAT Store when new merchandise becomes available, deletes merchandise when no longer available, and updates pricing and shipping information when necessary. Experience in WooCommerce is required.

If you want to be a part of the solution in delivering the quality web services AMSAT members deserve, we could sure use your help. Please contact the AMSAT VP of User Services at ke4al (at) yahoo (dot) com.

[ANS thanks Robert Bankston, KE4AL for the above information.]

+=+=+=

is scheduled to begin at approximately 09:18 UTC. It is recommended that you start listening approximately 10 minutes before this time. The duration of the contact is approximately 9 minutes and 30 seconds. The contact will be a telebridge between NA1SS and K6DUE. The contact should be audible over the east coast of the U.S. Interested parties are invited to listen in on the 145.80 MHz downlink. The contact is expected to be conducted in Italian.

A reminder that the deadline to submit proposals for ARISS contacts to be scheduled between July 1, 2020 and December 31, 2020 is coming up on November 30, 2019. For more information visit https://www.ariss.org/

[ANS thanks Charlie Sufana, AJ9N, and David Jordan, AA4KN, ARISS operation team members, for the above information]

+-+-+-

Hawaii (BK19, BK28, BK29, BL20) December 21-28, 2019
Alex, N7AGF, is heading back to Hawaii over Christmas. This will be a holiday-style activation, with special empahasis on the grid that got away – BK28. Keep an eye on Alex's Twitter feed for further announcements: https://twitter.com/N7AGF

Please submit any additions or corrections to ke4al (at) amsat.org

[ANS thanks Robert Bankston, KE4AL, AMSAT VP - User Services, for the above information]

Satellite Shorts From All Over

+ This week begins the 20th year of continuous human presence living off-planet aboard the International Space Station. NASA and its partners have successfully supported humans living in space since the Expedition 1 crew arrived Nov. 2, 2000. A truly global endeavor, the unique microgravity laboratory has hosted 239 people from 19 countries, more than 2,600 experiments from 3,900 researchers in 107 countries, and a variety of international and commercial spacecraft.
  (ANS thanks NASA for the above information)

+ Talks from this year's PocketQube Workshop are now available at:
  https://tinyurl.com/y2fmszbl Some slides are available here:
  http://www.albaorbital.com/3rd-pocketqube-workshop
  (ANS thanks AMSAT-UK for the above information)

+ 27 videos from the Open Source Cubesat Workshop 2019 held in Athens Conservatoire in Athens, Greece are available for viewing:
  https://tinyurl.com/y6rd5pzn The third edition of the workshop was hosted by Libre Space Foundation.
  (ANS thanks https://libre.space for the above information)

+ Radio amateurs in Sweden are limited to just 100 mW on 2.4 GHz. Yet an article by Christer, SM0NCL, shows how they can still send CW and SSB signals via the QO-100 / Es'hail-2 narrowband transponder! Read the article in Google English at https://tinyurl.com/AMSAT-SM
  (ANS thanks Southgatearc.org for the above information)

+ Wonder why that downlink signal suddenly fades? Since launch of the amateur radio FUNcube-1 (AO-73) CubeSat in 2013 the team have observed the spin of the satellite based on the panel temperatures. The FUNcube team have speculated why the satellite spins up and down and occasionally flips the direction of spin. A fascinating explanation (without math!) of why satellites can flip as they spin can be found in a YouTube video at
  https://www.youtube.com/watch?v=1VPfZ_XzisU&feature=emb_title
  (ANS thanks R.L. Brunton, G4TUT, for the above information)

+ Hams like free stuff! So here's a free PDF download of issue #87 of the MagPi magazine is available at: Raspberry Pi Weekly Issue #307
  https://magpi.raspberrypi.org/issues/87

+ Celebrate #NationalSTEMDay with a @Virgin_Orbit community grant! Fall applications close on November 20, which means if you reach out now, you still have a chance to secure up to $2,500 cash for your local STEM education program. Apply at: https://t.co/FySZrXmrKe

+ Instead of searching many manufacturer sites or calling on companies to find and compare designs, now you can search for designs based on the circuit's performance using Digi-Key's Reference Design Library. New designs are being added weekly and improvements will be made

based on user feedback: https://www.digikey.com/reference-designs/en
(ANS thanks JoAnne Maenpaa, K9JKM, for the above information)

+ The 2019 AMSAT Symposium Proceedings USB flash drives, including the 2019 Proceedings and all previously published Proceedings dating back to 1986 are back in stock. Backorders will go out soon and more are available. To order, visit https://tinyurl.com/yxmnqxew

+ The AMSAT Symposium Engineering Update video is now available at https://www.youtube.com/watch?v=WWwvhuIaiBA&t=50s
(ANS thanks Paul Stoetzer, N8HM, AMSAT Executive VP, for the above information)

/EX

In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73 and Remember to help keep amateur radio in space,
This week's ANS Editor,

K0JM at amsat dot org